

PHYSIOLOGY

Spiral Motion of Organisms Believed to be Key to Sex

Direction of Movement Apparently Determines Differences Between the Plants and Animals Which Have Two Sexes

SEX is a matter of going round in circles in one direction rather than another, reports from the Biological Laboratory at Cold Spring Harbor, N. Y., declare.

Love, people say, makes the world go round, but the motion is in a right-handed spiral, according to Dr. A. A. Schaeffer's experiments.

All organisms move in spirals when they are not specially guided by their senses. Bacteria and blindfolded aviators, experiment shows, behave alike in this respect.

Animals generally show a preference for either right-handed or left-handed motion. It is this spiral motion that Dr. Schaeffer has observed in a great variety of animals, representing some 17,500 different species.

Many simple plants or animals do not have two sexes but reproduce from one individual only. Hermaphrodites, as such are called, often combine the properties of male and female in one individual. Dr. Schaeffer's discovery is that the existence of one or two sexes in the organism is connected quite simply with the preferred type of spiral motion.

Right-handed twirlers, he finds, are generally those with well-marked males and females. Those that prefer to move to the left are sexless or doubled-sexed.

That the direction of this spiral motion tells very fundamental things about the way a living thing is constructed is the belief of Dr. Schaeffer. He suggests that this behavior can be traced back to a spiral formation in the chemical molecules of which the living protoplasm is composed.

The substances of which the life stuff of protoplasm is made up very often show a kind of twist rotation in their structure. Substances of this type may be either left-handed or right-handed, like gloves or an object and its reflection in a mirror.

And it seems to be very important for the purposes of the plant or animal that the chemical compound have

the proper kind of chemical spin or spiral. Thus it is possible that the differences between plants and animals that have two sexes and those that have not is a matter of this twist of the chemical molecules of which they are made.

This twistedness sometimes shows itself in the outward form or appearance of the animal or plant. Is this twist of body in the same direction as the motions of the organism, or isn't there any connection? Dr. Schaeffer asked.

Left in Structure

That, it seems, depends on whether you are dealing with a plant or an animal. The spirals observed in the form of plants, for instance in the way vines climb, are usually in the same direction as the spiral motions in such plants or parts of plants as are able to move. Animals, on the other hand, have their body spiral and motion spiral in opposite directions.

In both cases, however, the smaller and simpler organisms are predominantly left in structure and the higher or more organized members largely right-handed.

For these and other reasons Dr. Schaeffer believes that the cause of this biological dizziness is to be sought in the chemistry of the species concerned.

When the ameba moves in the presence of a fluctuating light, still other characteristic spiral motions are observed.

Of course, a single-celled animal, for instance, sometimes varies the monotony by twisting in the direction contrary to its usual habit just as some people are left-handed though most are right-handed.

In the case of one, at least, of these primordial living bits of jelly a good meal changes the direction from left to right, but after two or three hours the ameba becomes left-turning again.

These experiments give important evidence that the observed characteristics of an organism are correlated with

the positional relationships of their molecules. Dr. Schaeffer's theory brings together many isolated facts on the form and behavior of organisms and opens up fascinating fields for further investigation. His work gives evidence for the long-entertained idea that protoplasm consists of organized molecules.

Dr. Schaeffer concludes that any species of animal has its protoplasm made up of a special type of chemical molecules peculiar to itself and that these molecules are arranged into definite patterns.

Science News Letter, August 22, 1931

BOTANY

General Sherman Tree is Largest Living Thing

THE LARGEST living thing on earth is the General Sherman sequoia tree in Sequoia National Park. A committee of engineers has just completed precise measurements of the big trees of California and has awarded the championship to this tree, with the General Grant tree second.

Over a thousand observations and calculations with precise engineering instruments, showed that the General Sherman giant redwood has a volume of 600,120 board feet, a height of 272.4 feet, a circumference at the ground of 88 feet, and one limb alone has a diameter of 6.8 feet.

The sequoias were measured by engineers representing the California State and Fresno Chambers of Commerce.

Science News Letter, August 22, 1931



THE BIGGEST

No longer any doubt about the matter.